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ABSTRACT

Local norms for the three scores of the Wide Range Achievement Test (WRAT)--reading, spelling, and arithmetic--were developed on the basis of 1,021 children in the age range of 5 through 7 and 83 more children aged 8 through 11 from a suburban school district near Seattle, Washington. In general, the local group was found to be superior to the standardization group. These results confirmed the impressions of the teachers in the district with respect to the ability of the children, especially for kindergarten and first grade children. Trends in preschool education and educational television have increased the achievement of this age group. The norms that are given are related only to the age and not to the actual grade placement of the children at the time of testing. (CTM)

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HOW WIDE DOES THE WIDE RANGE ACHIEVEMENT TEST REALLY RANGE ? *

Marcia McBeath and Dan Marken **

The Wide Range Achievement Test (WRAT) is an instrument for a quick measurement of reading recognition, spelling, and arithmetic. The test was originally standardized in 1936. It was revised in 1946 and 1965.

Reviews in Buros were generally negative for both revisions. In the 3rd Mental Measurements Yearbook, it was stated that, "--this reviewer feels that the disadvantages of the WRAT and its manual overshadow the advantages" (Buros, 1949, p. 47).

Reviewers of the latest revision seem hardly more positively inclined. In referring to a factor analysis described in the manual, one reviewer said, "The exact nature of the procedure is apparantely known only to the authors and God, and He may have some uncertainty" (Buros, 1972, p. 68).

Because of questionable reliability and validity, the test has largely been ignored by authors of standard texts. Even the latest edition of Psychological Testing (Anastasi, 1976) mentions it only as a test that can be administered by teachers to screen children in the assessment of learning disabilities.

Nevertheless, the test has gained ever-increasing popularity with clinical and school psychologists. Over 15 years ago, it was found to be one of the 62 instruments most frequently used by the psychologists surveyed in 185 clinics (Sundberg, 1961). More recently it was included in the list of tests reported as being most frequently used by school psychologists in the State of Washington (Beck, Blakely, Lenning, McBeath and Nelson, 1974). The number of articles referring to the WRAT has increased from 15 in the 6th Mental Measurements Yearbook, to 99 in the latest Buros publication (1974).

Psychologists like the instrument because (1) it is quick and easy to administer, (2) it gives a standard score that can be compared to an I.Q., and (3) it seems to differentiate between students who have achieved but are not performing in the classroom and those who have not acquired the skills.

Teachers, however, are not so pleased with the results because they often contradict the teacher's assessment of the student's achievement. By and large, teachers are reasonably accurate in predicting their students' achievement level. In one concurrent validity study involving 502 students in grades 1-5, the authors (Hopkins, Dobson and Oldridge, 1962) found the following:

Grade	Validity Coefficient
1	.788
2	.739
3	.856
4	.861
5	.851

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With some students it is more difficult for teachers to predict achievement level. In a study of 45 learning disabled students, teachers were asked to estimate each child's grade level equivalent in reading, spelling, and arithmetic. High correlations were found between the test results and teacher ratings in spelling and arithmetic. In reading, however, the WRAT scores were approximately 0.5 years lower than the teacher ratings (Bray and Estes, 1975).

Many teachers feel that the discrepancy goes in the other direction. With the advent of children's educational TV programs such as Sesame Street and Electric Company, and with reading, as a formal subject, being taught in more and more kindergartens, many teachers feel that the present norms of the WRAT place children too high, especially in kindergarten and first grade. With the present norms, a reading grade placement of 1.2 means that the child can match and identify letters but read no words. In many school districts, the majority of children entering first grade can read several words.

Research has shown the effect of educational TV on children's readiness for kindergarten. One study, comparing results on the Metropolitan Readiness Test of pre and post Sesame Street programming, found a significant difference on the alphabet sub-test in favor of Sesame Street watchers, (Minton, 1975).

One more factor which must be considered when using the WRAT, is the overall I.Q. level of a district, since the standardization is based on a normal population. The WRAT standard score has a mean of 100 and a standard deviation of 15.

Could the WRAT be useful in a district whose average I.Q. for kindergartners was 107, whose children tended to come from socio-economic backgrounds where learning was high on the value scale, and which taught reading, writing, and arithmetic as formal subjects in kindergarten? This question precipitated the local norming in the Shoreline School District.

Method

Population - During the 1975-76 school year, all of the kindergartners and all of the first graders in the Shoreline School District were tested for this study. In the 1976-77 school year, a sampling of students through grade six were tested to see if the trends persisted. Shoreline is a suburban area just north of Seattle, Washington. The kindergarten-first grade testing included approximately 1,000 students. The WRAT standardization sample consisted of 1,568 students in this age range (Jastak, 1965, p. 9). The Shoreline group were distributed by age from 5.0 to 11.11. See Table I for the distribution.

TABLE I

Age (In Yrs. & Mos.)	Total Number
5.0 - 5.5	98
5.6 - 5.11	252
6.0 - 6.5	260
6.6 - 6.11	255
7.0 - 7.5	130
7.6 - 7.11	26
8.0 - 8.5	11
8.6 - 8.11	10
9.0 - 9.5	9
9.6 - 9.11	12
10.0 - 10.5	10
10.6 - 10.11	8
11.0 - 11.5	15
11.6 - 11.11	8
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Method - Students were randomly assigned to one of nine months, the first month being September 15 to October 14, and the last being May 15 to June 14. This follows the grade placement method used by Jastak and Jastak (1965, p.2). All tests were individually administered and scored by trained personnel under the supervision of the school psychologists and school social workers assigned to each school in the Shoreline District.

Results - Means and standard deviaitions were computed for each age group. See Tables II, III and IV.

TABLE II

MEANS AND STANDARD DEVIATIONS OF RAW SCORES

OF THE READING TEST FOR AGES 5.0 to 11.11

Age	No.	Mean	S.D.
5.0 - 5.5	98	25.01	8.06
5.6 - 5.11	252	27.88	9.43
6.0 - 6.5	260	36.11	11.72
6.6 - 6.11	255	45.31	12.14
7.0 - 7.5	130	48.96	9.80
7.6 - 7.11	26	54.12	9.79
8.0 - 8.5	11	65.27	11.00
8.6 - 8.11	10	69.90	9.61
9.0 - 9.5	9	70.00	7.43
9.6 - 9.11	12	71.75	11.92
10.0 - 10.5	10	80.10	5.28
10.6 - 10.11	8	71.63	8.09
11.0 - 11.5	15	79.60	9.13
11.6 - 11.11	8	75.63	13.96

TABLE III

MEANS AND STANDARD DEVIATIONS OF RAW SCORES

OF THE SPELLING TEST FOR AGES 5.0 to 11.11

Age	No.	Mean	S.D.
5.0 - 5.5	98	18.97	4.85
5.6 - 5.11	252	20.50	4.36
6.0 - 6.5	260	24.18	5.31
6.6 - 6.11	255	28.86	5.09
7.0 - 7.5	130	30.48	4.85
7.6 - 7.11	26	33.23	5.43
8.0 - 8.5	11	37.00	5.87
8.6 - 8.11	10	42.60	5.72
9.0 - 9.5	9	40.89	5.75
9.6 - 9.11	12	43.17	8.76
10.0 - 10.5	10	45.80	3.43
10.6 - 10.11	8	42.50	4.00
11.0 - 11.5	15	46.80	6.33
11.6 - 11.11	8	47.00	7.37

TABLE IV

MEANS AND STANDARD DEVIATIONS OF RAW SCORES

OF THE ARITHMETIC TEST FOR AGES 5.0 to 11.11

Age	No.	Mean	S.D.
5.0 - 5.5	98	16.27	3.16
5.6 - 5.11	252	17.58	3.27
6.0 - 6.5	260	19.85	3.28
6.6 - 6.11	255	22.38	4.62
7.0 - 7.5	130	23.15	4.56
7.6 - 7.11	26	24.12	3.00
8.0 - 8.5	11	27.09	1.97
8.6 - 8.11	10	29.50	2.22
9.0 - 9.5	9	29.89	2.26
9.6 - 9.11	12	31.33	3.60
10.0 - 10.5	10	34.40	2.63
10.6 - 10.11	8	35.38	3.07
11.0 - 11.5	15	36.93	6.26
11.6 - 11.11	8	36.13	11.06

In comparing means for the WRAT normative group and the Shoreline sample, it may be seen in Table V that the Shoreline mean is higher at every age level and in all subjects for those students in kindergarten and grade one. The follow-up sampling for grades two through seven suggest that the difference holds up best in reading.

TABLE V

COMPARISON OF RAW SCORE MEANS FOR THE WRAT

NORMATIVE GROUP AND THE SHORELINE SAMPLE

	Reading		Spelling		Arithmetic	
Age	WRAT Group	Shoreline	WRAT Group	Shoreline	WRAT Group	Shoreline
5.0 - 5.5	16.96	25.01	13.87	18.97	12.74	16.27
5.6 - 5.11	19.37	27.88	15.35	20.50	13.51	17.58
6.0 - 6.5	24.08	36.11	18.70	24.18	17.14	19.85
6.6 - 6.11	32.25	45.31	23.50	28.86	19.32	22.38
7.0 - 7.5	39.85	48.96	27.03	30.48	22.16	23.15
7.6 - 7.11	46.83	54.12	31.15	33.23	24.97	24.12
8.0 - 8.5	51.48	65.27	33.56	37.00	27.03	27.09
8.6 - 8.11	54.17	69.90	35.28	42.60	28.50	29.50
9.0 - 9.5	57.40	70.00	37.56	40.89	29.95	29.89
9.6 - 9.11	61.16	71.75	40.07	43.17	31.93	31.33
10.0 - 10.5	63.18	80.10	42.15	45.80	33.72	34.40
10.6 - 10.11	66.60	71.63	44.05	42.50	37.03	35.38
11.0 - 11.5	68.48	79.60	45.87	46.80	39.48	36.93
11.6 - 11.11	70.35	75.63	46.72	47.00	41.72	36.13

The Shoreline mean is also higher at each month in the kindergarten and first grade norms. (See Table VI).

TABLE VI

COMPARISON OF MEAN GRADE NORMS FOR

WRAT STANDARDIZATION GROUP AND

SHORELINE SAMPLE

	Reading		Spelling		Arithmetic	
Grade Norms	WRAT Group	Shoreline	WRAT Group	Shoreline	WRAT Group	Shoreline
K.1	9	25	9	15	8	14
K.2	10-11	26	10	18	9	16
K.3	12	25	11	18	10	16
K.4	13-14	25	12	19	11	17
K.5	15	27	13	21	12	18
K.6	16-17	28	14	20	13	19
K.7	18	31	15	21	14	19
K.8	19-20	30	16	22	14	19
1.1	23	38	19	25	16	19
1.2	24-25	40	20	26	17	21
1.3	26-27	44	21	28	17	21
1.4	28-29	47	22	29	18	22
1.5	30-31	47	23	29	18	23
1.6	32-33	47	24	29	19	24
1.7	34	50	25	30	19	23
1.8	35	51	26	32	20	24

Another way of looking at these scores is to convert the Shoreline mean raw scores at each age, to grade placement and standard scores, using the WRAT norms. See Tables VII, VIII and IX.

TABLE VII

GRADE PLACEMENT AND STANDARD SCORES OF

SHORELINE STUDENTS IN READING USING WRAT NORMS

Age	Shoreline Mean Raw Score	Grade Placement on WRAT Norms	Standard Score on WRAT Norms
5.0 - 5.5	25	1.2	114
5.6 - 6.1J	28	1.4	114
6.0 - 6.5	36	1.9	117
6.6 - 6.11	45	2.5	116
7.0 - 7.5	49	2.8	109
7.6 - 7.11	54	3.6	111
8.0 - 8.5	65	5.1	121
8.6 - 8.11	70	6.1	129
9.0 - 9.5	70	6.1	120
9.6 - 9.11	72	6.5	116
10.0 - 10.5	80	8.4	128
10.6 - 10.11	72	6.5	105
11.0 - 11.5	80	8.4	118
11.6 - 11.11	76	7.2	104

TABLE VIII

GRADE PLACEMENT AND STANDARD SCORES

OF SHORELINE STUDENTS IN SPELLING

USING WRAT NORMS

Age	Shoreline Mean Raw Score	Grade Placement on WRAT Norms	Standard Score on WRAT Norms
5.0 - 5.5	19	1.1	111
5.6 - 6.11	20	1.2	109
6.0 - 6.5	24	1.6	110
6.6 - 6.11	29	2.3	112
7.0 - 7.5	30	2.5	104
7.6 - 7.11	33	2.9	102
8.0 - 8.5	37	3.7	105
8.6 - 8.11	43	5.3	119
9.0 - 9.5	41	4.7	106
9.6 - 9.11	43	5.3	106
10.0 - 10.5	46	6.0	108
10.6 - 10.11	43	5.3	96
11.0 - 11.5	47	6.3	102
11.6 - 11.11	47	6.3	98

TABLE IX

GRADE PLACEMENT AND STANDARD SCORES

OF SHORELINE STUDENTS IN ARITHMETIC

USING WRAT NORMS

Age	Shoreline Mean Raw Score	Grade Placement on WRAT Norms	Standard Score on WRAT Norms
5.0 - 5.5	16	1.0	108
5.6 - 5.11	18	1.4	114
6.0 - 6.5	20	1.8	114
6.6 - 6.11	22	2.1	108
7.0 - 7.5	23	2.2	100
7.6 - 7.11	24	2.4	95
8.0 - 8.5	27	3.0	97
8.6 - 8.11	29	3.6	101
9.0 - 9.5	30	3.9	99
9.6 - 9.11	31	4.2	96
10.0 - 10.5	34	5.0	100
10.6 - 10.11	35	5.2	95
11.0 - 11.5	37	5.5	96
11.6 - 11.11	36	5.3	90

By comparing the grade placement of the Shoreline students using the WRAT norms, with the average grade placement in the normative sample (a standard score of 100), it may be seen that Shoreline students in kindergarten and grade one score approximately a half a year (0.5) ahead of the WRAT sample. The small number of subjects in the other grades make the data a little more difficult to interpret, but suggest that the differences continue to increase in Reading, while they are lost in Arithmetic. See Table X.

TABLE X

COMPARISON OF WRAT GRADE PLACEMENT WHERE STANDARD SCORE IS 100, AND MEAN SHORELINE GRADE PLACEMENT

Age	Reading		Spelling		Arithmetic	
	WRAT Group	Shoreline	WRAT Group	Shoreline	WRAT Group	Shoreline
5.0 - 5.5	K.7	1.2	K.7	1.1	K.7	1.0
5.6 - 5.11	K.8	1.4	K.8	1.2	K.8	1.4
6.0 - 6.5	1.1	1.9	1.1	1.6	1.1	1.8
6.6 - 6.11	1.6	2.5	1.6	2.3	1.6	2.1
7.0 - 7.5	2.2	2.8	2.2	2.5	2.2	2.2
7.6 - 7.11	2.8	3.6	2.8	2.9	2.8	2.4
8.0 - 8.5	3.3	5.1	3.3	3.7	3.3	3.0
8.6 - 8.11	3.5	6.1	3.5	5.3	3.5	3.6
9.0 - 9.5	4.1	6.1	4.1	4.7	4.1	3.9
9.6 - 9.11	4.7	6.5	4.7	5.3	4.7	4.2
10.0 - 10.5	5.0	8.4	5.0	6.0	5.0	5.0
10.6 - 10.11	5.8	6.5	5.8	5.3	5.8	5.2
11.0 - 11.5	6.0	8.4	6.0	6.3	6.0	5.5
11.6 - 11.11	6.6	7.2	6.6	6.3	6.6	5.3

Discussion - The local norming of the Wide Range Achievement Test showed that in the Shoreline School District the teachers were correct in their assumption that the WRAT norming was inadequate for that population at the kindergarten and first grade level. Results of the sampling through sixth grade suggest that the trends continue in Reading, and to some extent in Spelling. It is not known whether the higher scores are due to the increased readiness level of incoming kindergarteners, the Shoreline kindergarten and first grade reading program, or the higher average I.Q. of the students. As a result of this norming, however, personnel in the district scoring the test using local norms feel more confident in sharing results with kindergarten and first grade teachers. A more thorough local norming of grades two through six needs to be done next. Indeed, with the changes in early childhood education, the WRAT may be due for a new national norming. Meanwhile, other districts similar to Shoreline may find these norms to be closer to their population and may prefer to use them while collecting data for their own local norms. With the wide range of the Wide Range Achievement Test, adequate local norms are essential.

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